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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/550,640	04/14/2000	Hiroyuki Kurokawa	1134.1271-DIV/DMP	9242

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EXAMINER	
JERABEK, KELLY L	

ART UNIT	PAPER NUMBER
2612	

DATE MAILED: 07/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/550,640	KUROKAWA ET AL.	
	Examiner	Art Unit	
	Kelly L. Jerabek	2612	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *14 April 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *43-48* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *43-48* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *14 April 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

Applicant's arguments filed 4/14/2005 have been fully considered but they are not persuasive.

Response to Remarks:

Applicant's arguments (Amendment page 6) state that the Kinba reference fails to teach or suggest providing a storage device for storing a correction value as cited in independent claim 43. The Examiner respectfully disagrees. Kinba discloses in figure 43 an auto focus sensor module constituting an auto focus detecting device of an auto focus camera. The module includes a photographing optical system having a focus adjusting lens (14) disposed movably, beam splitting elements (15,16) for splitting light beams incident on the focus adjusting lens (14), a first image forming lens (fig. 43: lens for contrast detection method) for forming one of the light beams split into an image, and a second image forming lens (fig. 43: 2, lens for phase-difference detection method) for forming the other one of the light beams split into an image (col. 10, lines 17-32). The auto focus sensor module also includes a first focusing estimating portion (contrast detection portion) (col. 1, lines 12-19; col. 3, lines 52-58) and a second focusing estimating portion (phase-difference detection portion) (col. 3, lines 44-52) for

creating focusing data for focusing an image formed through the photographing optical system. The auto focus sensor module also includes a microcomputer (19) for focusing the object image by an amount of defocus that is detected by each of the focusing estimating device (col. 1, lines 12-19; col. 4, lines 5-17). For example, the phase-difference detecting portion detects an amount and a direction of defocus by a phase-difference of an object image reproduced by two divided luminous fluxes by passing through different pupils of an aperture mask and focuses an object image by driving a lens based on the detected result of positional deviation (defocus amount) (col. 1, lines 20-27; col. 3, lines 44-52; col. 8, lines 1-12). **The microcomputer (19) calculates an amount of defocus based on the stored data and also drives a motor (20) for focus operation in accordance with the defocus amount (col. 4, lines 4-17). It is inherent that Microcomputers include storage components as a part of their circuitry. Therefore, the Examiner is reading the microcomputer (19) as a storage device stored with a correction value (defocus amount).** The microcomputer (19) also serves as a correcting device for correcting the focusing data by the defocus amount. Additionally, the auto focus sensor module includes a motor (20) for moving the focus-adjusting lens (14) on the basis of the focusing data (col. 4, lines 4-17).

Applicant's arguments (Amendment page 7) state that the Kinba reference fails to teach or suggest storing, as a correction value, information upon an in-focus state by the first image forming lens so that in-focus information is created upon in-focus state based on the correction value by the second image forming lens. Thus, Kinba fails to

teach or suggest at least the second focusing estimating portion of claim 44. The Examiner respectfully disagrees. The Kinba reference discloses in figure 43 an auto focus sensor module constituting an auto focus detecting device of an auto focus camera. The module includes a photographing optical system having a focus adjusting lens (14) disposed movably, beam splitting elements (15,16) for splitting light beams incident on the focus adjusting lens (14), a first image forming lens (fig. 43: lens for contrast detection method) for forming one of the light beams split into an image, and a second image forming lens (fig. 43: 2, lens for phase-difference detection method) for forming the other one of the light beams split into an image (col. 10, lines 17-32). The auto focus sensor module also includes a first focusing estimating portion (contrast detection portion) having a first imaging element (7) for picking up the image formed by the first image forming lens and a light metering area sensor (9) for detecting a difference of light amounts of picture elements (col. 1, ines 12-19; col. 3, lines 52-58). The first focusing estimating portion (contrast detection portion) includes a microcomputer (19) for focusing the object image by an amount of defocus that is detected (col. 1, lines 12-19; col. 4, lines 5-17). The auto focus sensor module also includes a second focusing estimating portion (phase-difference detection portion) having an image re-forming optical system (3) for reforming light beams passing through portions with different pupils among the light beams for forming the image formed by the second image forming lens (2), and a second imaging element (4) for picking up the images formed by the image re-forming optical system (3) (col. 3, lines 44-52). The phase-difference detecting portion detects an amount and a direction of

defocus by a phase-difference of an object image reproduced by two divided luminous fluxes by passing through different pupils of an aperture mask and focuses an object image by driving a lens based on the detected result of positional deviation (defocus amount) (col. 1, lines 20-27; col. 3, lines 44-52; col. 8, lines 1-12). The microcomputer (19) stores data and calculates an amount of defocus based on the stored data and also drives a motor (20) for focus operation in accordance with the defocus amount (col. 4, lines 4-17). Microcomputers include storage components as a part of their circuitry. Therefore, the Examiner is reading the microcomputer (19) as a storage device stored with a correction value (defocus amount). **Kinba discloses in figure 41 a flowchart showing a process of an autofocus detecting device in which in which an amount of defocus is first calculated by a first focusing estimating portion (contrast detecting method) and based on the result an amount of defocus may be calculated by a second focus estimating portion (phase-difference detecting method) (col. 9, lines 38-56). Therefore, a storage device (microcomputer 19) stores data (defocus amount) detected by a data detecting device (4) of a second focus estimating portion as a correction value when the image obtained by a first image forming lens (lens of first focus estimating portion) is focused on the object in the first plane.** The microcomputer (19) also serves as a correcting device for correcting the focusing data by the defocus amount. Additionally, the auto focus sensor module disclosed by Kinba makes it possible to select at least one of the first focusing estimating portion (contrast detection portion) and the second focusing estimating portion (phase-difference detection portion) (col. 1, lines 55-62; col. 9, lines

27-29; figures 40a, 40b). Finally, the auto focus sensor module includes a motor (20) for moving the focus-adjusting lens (14) on the basis of the focusing data (col. 4, lines 4-17).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 43-48 rejected under 35 U.S.C. 103(a) as being unpatentable over Kinba et al. US 5,597,999.

Re claim 43, Kinba discloses in figure 43 an auto focus sensor module constituting an auto focus detecting device of an auto focus camera. The module includes a photographing optical system having a focus adjusting lens (14) disposed movably, beam splitting elements (15,16) for splitting light beams incident on the focus adjusting lens (14), a first image forming lens (fig. 43: lens for contrast detection method) for forming one of the light beams split into an image, and a second image forming lens (fig. 43: 2, lens for phase-difference detection method) for forming the

other one of the light beams split into an image (col. 10, lines 17-32). The auto focus sensor module also includes a first focusing estimating portion (contrast detection portion) (col. 1, lines 12-19; col. 3, lines 52-58) and a second focusing estimating portion (phase-difference detection portion) (col. 3, lines 44-52) for creating focusing data for focusing an image formed through the photographing optical system. The examiner takes Official Notice that it is well known in the art for focus detecting devices using a contrast detecting method to include a level detecting device such as a high pass filter for detecting a level of a proper frequency component. It would have been obvious to one of ordinary skill in the art at the time of invention for the contrast detecting method of Kinba to include a level detecting device. The auto focus sensor module also includes a microcomputer (19) for focusing the object image by an amount of defocus that is detected by each of the focusing estimating device (col. 1, lines 12-19; col. 4, lines 5-17). For example, the phase-difference detecting portion detects an amount and a direction of defocus by a phase-difference of an object image reproduced by two divided luminous fluxes by passing through different pupils of an aperture mask and focuses an object image by driving a lens based on the detected result of positional deviation (defocus amount) (col. 1, lines 20-27; col. 3, lines 44-52; col. 8, lines 1-12). The microcomputer (19) calculates an amount of defocus based on the stored data and also drives a motor (20) for focus operation in accordance with the defocus amount (col. 4, lines 4-17). It is inherent that Microcomputers include storage components as a part of their circuitry. Therefore, the Examiner is reading the microcomputer (19) as a storage device stored with a correction value (defocus amount). The microcomputer

(19) also serves as a correcting device for correcting the focusing data by the defocus amount. Additionally, the auto focus sensor module includes a motor (20) for moving the focus-adjusting lens (14) on the basis of the focusing data (col. 4, lines 4-17).

Re claim 44, The Kinba reference discloses in figure 43 an auto focus sensor module constituting an auto focus detecting device of an auto focus camera. The module includes a photographing optical system having a focus adjusting lens (14) disposed movably, beam splitting elements (15,16) for splitting light beams incident on the focus adjusting lens (14), a first image forming lens (fig. 43: lens for contrast detection method) for forming one of the light beams split into an image, and a second image forming lens (fig. 43: 2, lens for phase-difference detection method) for forming the other one of the light beams split into an image (col. 10, lines 17-32). The auto focus sensor module also includes a first focusing estimating portion (contrast detection portion) having a first imaging element (7) for picking up the image formed by the first image forming lens and a light metering area sensor (9) for detecting a difference of light amounts of picture elements (col. 1, ines 12-19; col. 3, lines 52-58). The examiner takes Official Notice that it is well known in the art for focus detecting devices using a contrast detecting method to include a level detecting device such as a high pass filter for detecting a level of a proper frequency component. It would have been obvious to one of ordinary skill in the art at the time of invention for the contrast detecting method of Kinba to include a level detecting device. The first focusing estimating portion (contrast detection portion) includes a microcomputer (19) for focusing the object image

by an amount of defocus that is detected (col. 1, lines 12-19; col. 4, lines 5-17). The auto focus sensor module also includes a second focusing estimating portion (phase-difference detection portion) having an image re-forming optical system (3) for reforming light beams passing through portions with different pupils among the light beams for forming the image formed by the second image forming lens (2), and a second imaging element (4) for picking up the images formed by the image re-forming optical system (3) (col. 3, lines 44-52). The phase-difference detecting portion detects an amount and a direction of defocus by a phase-difference of an object image reproduced by two divided luminous fluxes by passing through different pupils of an aperture mask and focuses an object image by driving a lens based on the detected result of positional deviation (defocus amount) (col. 1, lines 20-27; col. 3, lines 44-52; col. 8, lines 1-12). The microcomputer (19) calculates an amount of defocus based on the stored data and also drives a motor (20) for focus operation in accordance with the defocus amount (col. 4, lines 4-17). It is inherent that Microcomputers include storage components as a part of their circuitry. Therefore, the Examiner is reading the microcomputer (19) as a storage device stored with a correction value (defocus amount). Kinba discloses in figure 41 a flowchart showing a process of an autofocus detecting device in which in which an amount of defocus is first calculated by a first focusing estimating portion (contrast detecting method) and based on the result an amount of defocus may be calculated by a second focus estimating portion (phase-difference detecting method) (col. 9, lines 38-56). Therefore, a storage device (microcomputer 19) stores data (defocus amount) detected by a data detecting device (4) of a second focus estimating portion as a

correction value when the image obtained by a first image forming lens (lens of first focus estimating portion) is focused on the object in the first plane. The microcomputer (19) also serves as a correcting device for correcting the focusing data by the defocus amount. Additionally, the auto focus sensor module disclosed by Kinba makes it possible to select at least one of the first focusing estimating portion (contrast detection portion) and the second focusing estimating portion (phase-difference detection portion) (col. 1, lines 55-62; col. 9, lines 27-29; figures 40a, 40b). Finally, the auto focus sensor module includes a motor (20) for moving the focus-adjusting lens (14) on the basis of the focusing data (col. 4, lines 4-17).

Re claim 45, the auto focus sensor module includes a microcomputer (19) that stores data and calculates an amount of defocus based on the stored data and also drives a motor (20) for focus operation in accordance with the defocus amount (col. 4, lines 4-17).

Re claim 46, Kinba discloses in figure 43 an auto focus sensor module constituting an auto focus detecting device of an auto focus camera. The module includes a photographing optical system having a focus adjusting lens (14) disposed movably, beam splitting elements (15,16) for splitting light beams incident on the focus adjusting lens (14), a first image forming lens (fig. 43: lens for contrast detection method) for forming one of the light beams split into an image, and a second image forming lens (fig. 43: 2, lens for phase-difference detection method) for forming the

other one of the light beams split into an image (col. 10, lines 17-32). The auto focus sensor module also includes a first focusing estimating portion (contrast detection portion) having a first imaging element (7) for picking up the image formed by the first image forming lens and a light metering area sensor (9) for detecting a difference of light amounts of picture elements (col. 1, ines 12-19; col. 3, lines 52-58). The examiner takes Official Notice that it is well known in the art for focus detecting devices using a contrast detecting method to include a level detecting device such as a high pass filter for detecting a level of a proper frequency component. It would have been obvious to one of ordinary skill in the art at the time of invention for the contrast detecting method of Kinba to include a level detecting device. The first focusing estimating portion (contrast detection portion) also includes a microcomputer (19) for focusing the object image by an amount of defocus that is detected (col. 1, lines 12-19; col. 4, lines 5-17). The auto focus sensor module also includes a second focusing estimating portion (phase-difference detection portion) having an image re-forming optical system (3) for reforming light beams passing through portions with different pupils among the light beams for forming the image formed by the second image forming lens (2), and a second imaging element (4) for picking up the images formed by the image re-forming optical system (3) (col. 3, lines 44-52). The phase-difference detecting portion detects an amount and a direction of defocus by a phase-difference of an object image reproduced by two divided luminous fluxes by passing through different pupils of an aperture mask and focuses an object image by driving a lens based on the detected result of positional deviation (defocus amount) (col. 1, lines 20-27; col. 3, lines 44-52;

col. 8, lines 1-12). A microcomputer (19) calculates an amount of defocus based on the stored data and also drives a motor (20) for focus operation in accordance with the defocus amount (col. 4, lines 4-17). It is inherent that Microcomputers include storage components as a part of their circuitry. Therefore, the Examiner is reading the microcomputer (19) as a storage device stored with a correction value (defocus amount). Therefore, an imaging positional deviation is calculated and stored and a correction value is stored and focusing data is used to focus the image on the basis of the imaging positional deviation. Additionally, the auto focus sensor module disclosed by Kinba makes it possible to select at least one of the first focusing estimating portion (contrast detection portion) and the second focusing estimating portion (phase-difference detection portion) (col. 1, lines 55-62; col. 9, lines 27-29; figures 40a, 40b). Finally, the auto focus sensor module includes a motor (20) for moving the focus adjusting lens (14) on the basis of the focusing data (col. 4, lines 4-17).

Re claim 47, the auto focus sensor module includes a microcomputer (19) that stores data and calculates an amount of defocus based on the stored data and also drives a motor (20) for focus operation in accordance with the defocus amount (col. 4, lines 4-17).

Re claim 48, the auto focus sensor module the phase-difference detecting method makes a rough adjustment based on a focus detection and the contrast detecting method makes an exact adjustment based on a focus detection in order to

drive a lens into an in-focus condition (col. 1, lines 55-59; col. 9, lines 15-37). Therefore, the first focusing estimating portion (contrast detecting method) is selected if the imaging positional deviation (amount of defocus change) is under a predetermined value, and the second focusing estimating portion (phase-difference detecting method) is selected if the imaging positional deviation (amount of defocus change) is larger than a predetermined value.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Contacts

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kelly L. Jerabek whose telephone number is **(571) 272-7312**. The examiner can normally be reached on Monday - Friday (8:00 AM - 5:00 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wendy Garber can be reached on **(571) 272-7308**. The fax phone number for submitting all Official communications is 703-872-9306. The fax phone number for submitting informal communications such as drafts, proposed amendments, etc., may be faxed directly to the Examiner at **(571) 273-7312**.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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